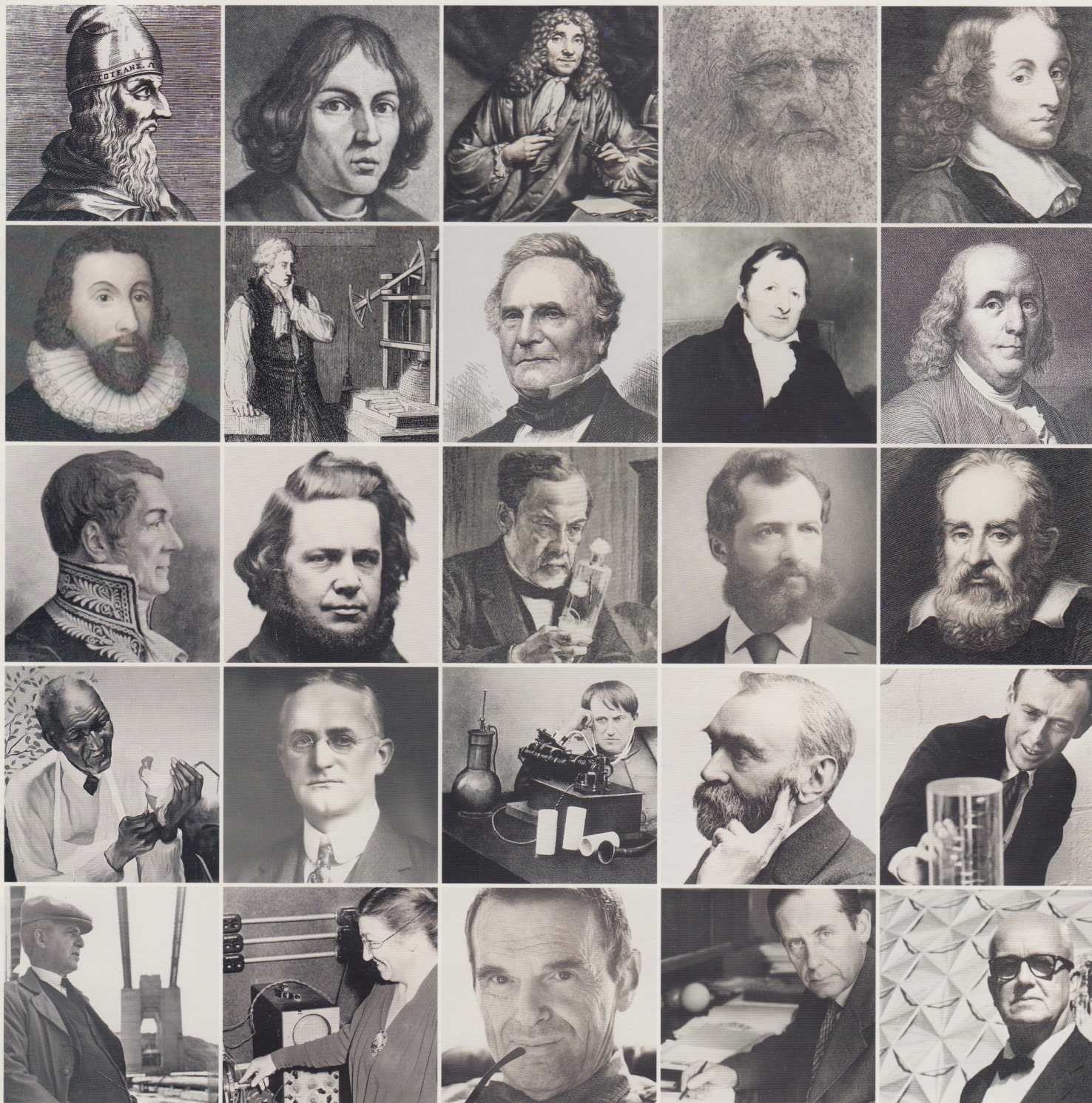




Throughout history,
there's never been a shortage
of good ideas.



The challenge has been to create to



Where do great ideas come from?

Sometimes they come to mind suddenly, in the middle of the night. Sometimes they are the result of countless hours of research by a team of dedicated experts.

The individuals shown on the cover of this brochure are

people with a passion for ideas.

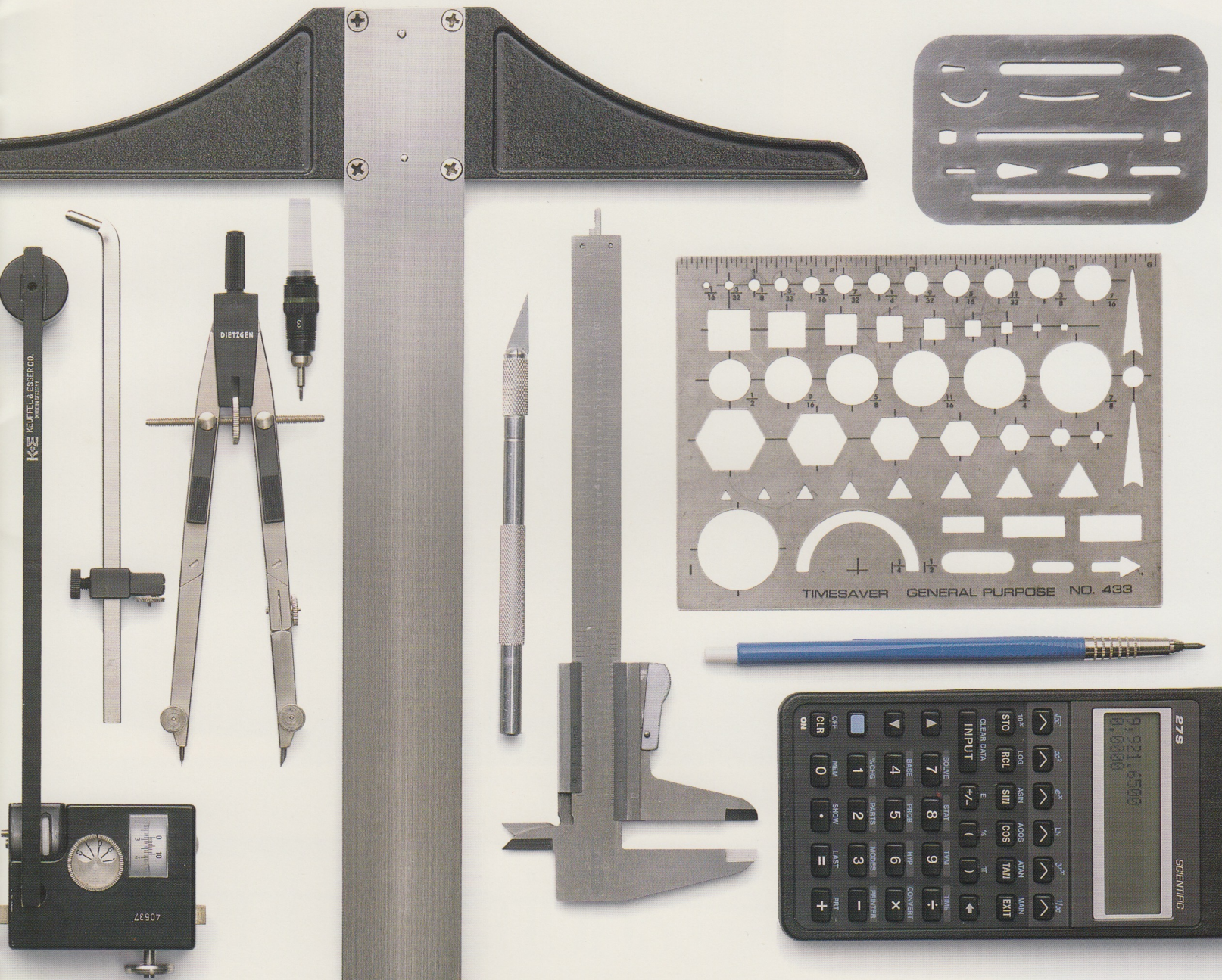
Great ideas.

They're people who—through sheer inspiration and, more often than not, perspiration—came up with ideas that, in the words of economist John Maynard Keynes, “shape the course of history.”

They were explorers, inventors, and creators—visionaries.

What separates these people from everyone else is that they didn't stop with just an idea; they went far beyond it. Using the tools available to them, they turned their ideas into reality. And,

Tools that turn inspiration into reality.



when the technology of the day wasn't sufficient to make their ideas fly, they often designed the necessary tools themselves.

As far back in history as you can go, that's been the pattern. People have

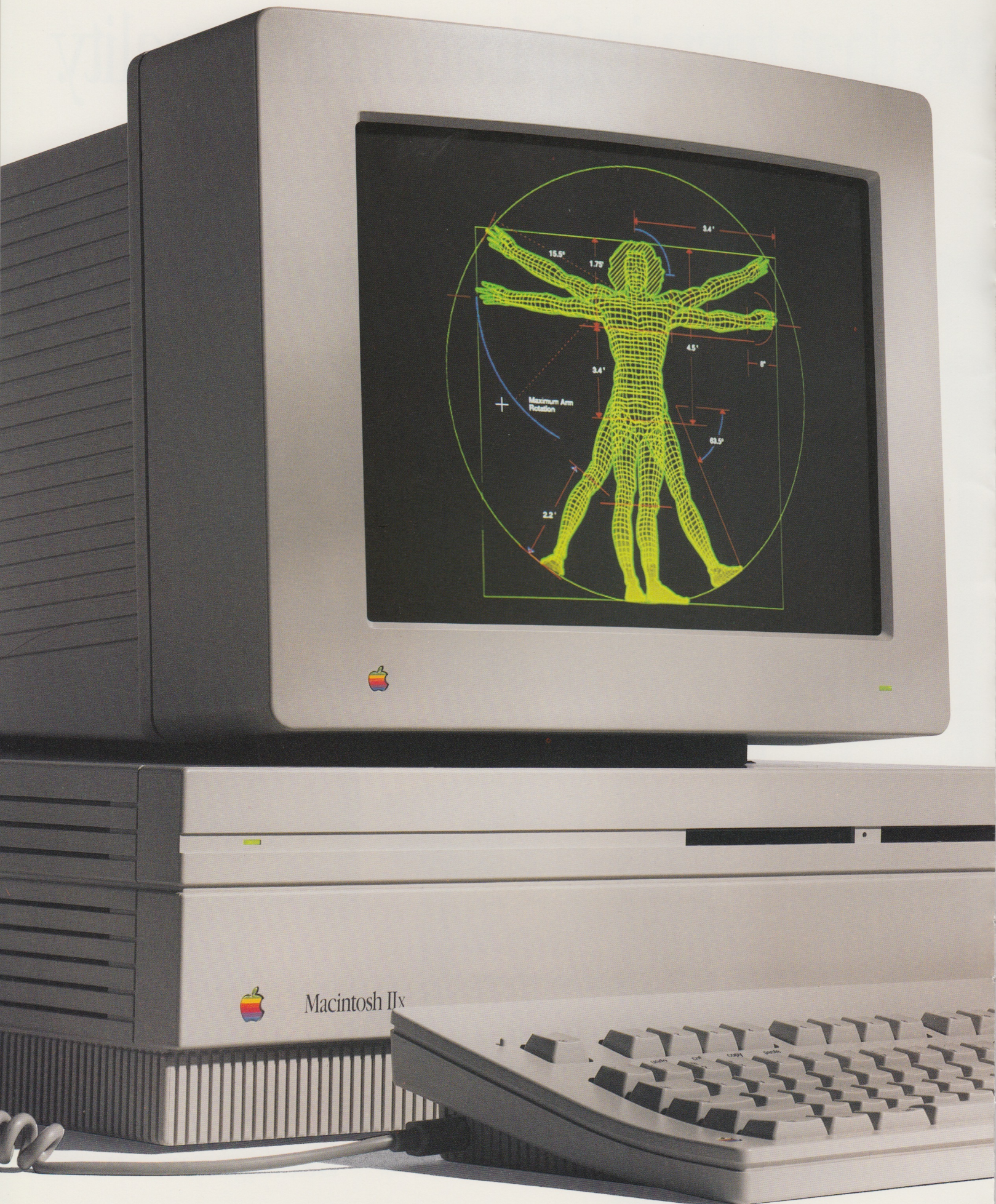
turned their ideas into inventions that changed the way we live, work, travel, and communicate.

Evolutionary ideas. And revolutionary ones.

They've created tools that make it easier for

people to do the things they do every day. And tools that make it possible for people to do things they've never done before.

These tools allow us to explore new ways to create, think, learn, and work. And to turn our attention to even bigger and better ideas.



Macintosh: What we've been leading up to.

In 1984, we introduced a very good idea: a personal computer that worked the way people work—and that extended the capabilities of the people using it.

We called it Macintosh.[®]

Macintosh wasn't like any other personal computer people had ever seen. And it wasn't like any other personal computer they had ever used.

The Apple[®] Macintosh offers you an intuitive way to work—it's a tool that builds on the experience you already have, and on the tools you're used to working with. It enables you to try out new ideas and explore new possibilities—and to extend your reach into other environments.

Macintosh also makes computing an experience that people enjoy.

With Macintosh, we introduced the concept of

direct control and manipulation. For example, you can point to items on the screen and easily move them around, resize objects, and make many other design revisions—and see the results of your actions in real time—all with a couple of clicks of the mouse.

In other words, Macintosh is the first personal computer that encourages people to experiment with their ideas.

Macintosh also stands out because of the elegant way it fits in with the way people work.

It offers unique design features—such as a “desktop” with icons, or pictures, of familiar objects people see and use every day (documents, file folders, a trash can, a calculator, and so on). And it makes computer and application functions available through consistent, easy-to-use

menus with commands in plain English: open, copy, paste, print, save, quit, and so on.

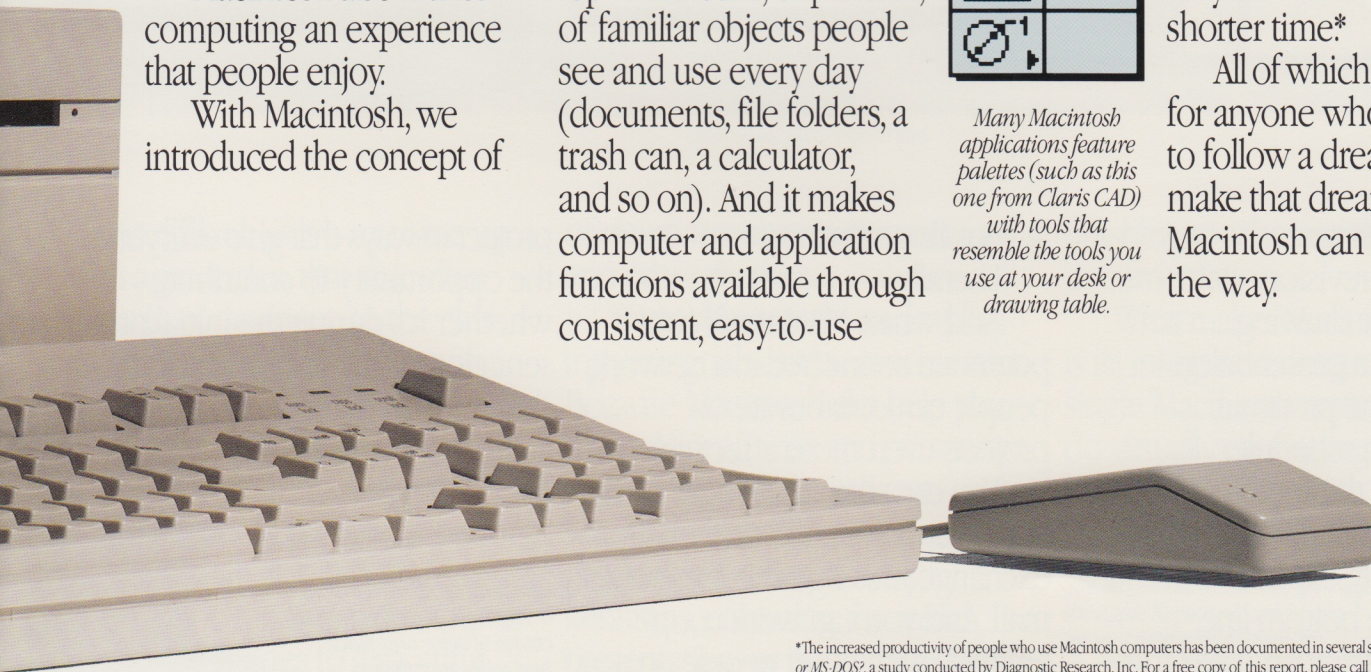
With Macintosh, you can concentrate on the task that needs to be done—whether it's drafting a memo, creating a simple drawing, or building a complex shaded model—instead of concentrating on the tool you're using to perform it.

Together, these features can reduce training time from several weeks to just a few hours. They also allow people to be more productive—and more satisfied with the work they do—in a much shorter time*.

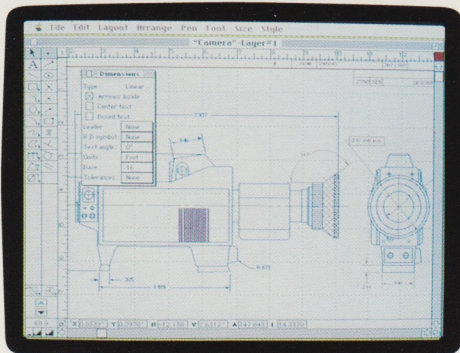
All of which means that for anyone who wants to follow a dream—and make that dream reality—Macintosh can help lead the way.



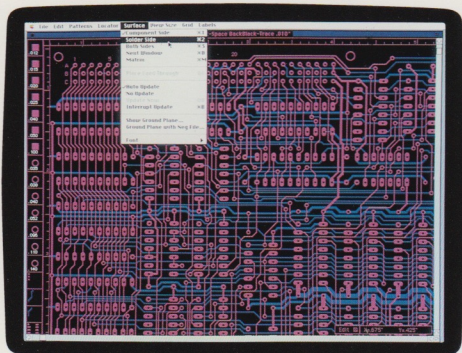
Many Macintosh applications feature palettes (such as this one from Claris CAD) with tools that resemble the tools you use at your desk or drawing table.



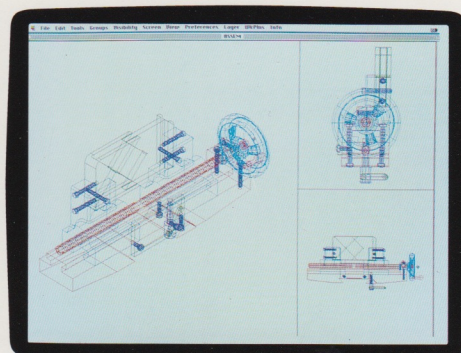
*The increased productivity of people who use Macintosh computers has been documented in several studies, including Macintosh or MS-DOS, a study conducted by Diagnostic Research, Inc. For a free copy of this report, please call 1-800-446-3000, ext. 475.



Claris CAD from Claris Corporation is a full-featured, two-dimensional design and drafting package. It uses three basic concepts to create construction, alignment, and dimensioning tools.



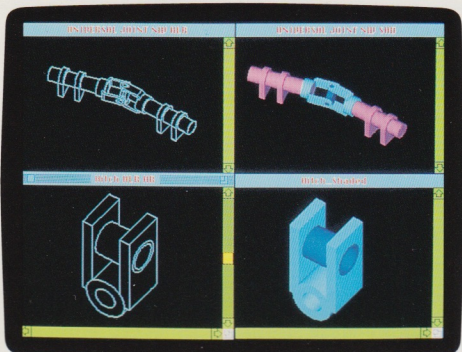
For printed circuit board design, Professional System from Douglas CAD/CAM provides tools that help automate much of the process—including schematic capture, logic simulation, and printed circuit board layout.



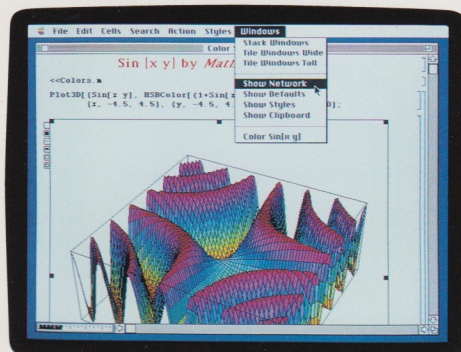
MacBravo! from Schlumberger CAD/CAM has been task-optimized for mechanical engineers. Changes made in a three-dimensional model will automatically update the two-dimensional model.



Arbitrion II from Gimeor, Inc., is an integrated 2-D and 3-D architectural package that can be used at any point in the design cycle, from concept through detailed drawing.



IN-CAD from Infinite Graphics is a true solid-modeling program that features the ability to take three-dimensional objects and "add" or "subtract" other objects to create a new object.



Mathematica from Wolfram Research Inc. is an intuitive visualization tool that aids in the understanding and solving of both simple and complex mathematical equations.

It's one thing to get an idea off the drawing board.

What's the first thing you do when you realize that you've just come up with a remarkably good idea?

Write it down?

Sketch it on a napkin?

Try desperately to keep it in your mind—just as you envisioned it—until you get to the office?

Basically, you do anything you can to capture the idea in a form that will allow you to refine

it at a later time.

And that's where a Macintosh computer can help.

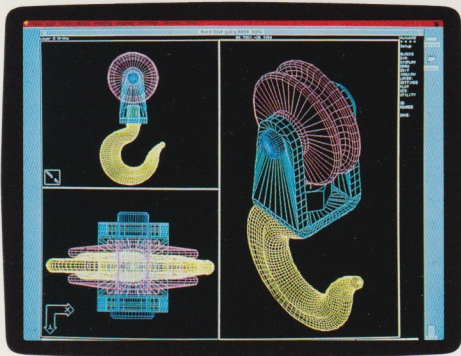
Because no matter what field you're in—whether it's mechanical engineering, industrial design, architecture, or drafting—Macintosh provides the tools that make it easier to work with and perfect an idea.

And to make it reality.

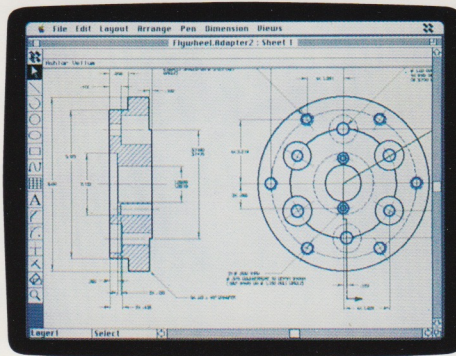
Today, a full spectrum of appli-

cations is available to help you get from concept to completion. From comparatively simple, low-cost drawing programs to sophisticated, industry-standard computer-aided design programs, each one is designed to give you the ability to develop your ideas in completely new ways.

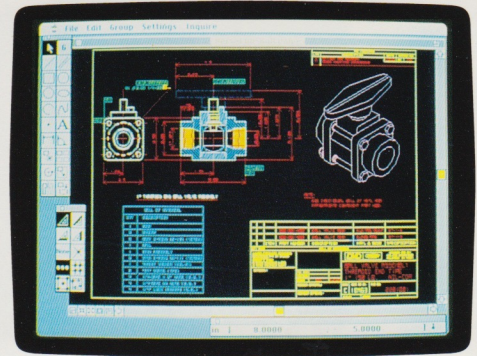
And, like all Macintosh applications, they share a consistent user interface—pull-down menus,



An industry-standard CAD package, AutoCAD from Autodesk offers some of the most advanced CAD features available. Files created in Macintosh AutoCAD are also binary compatible with other AutoCAD programs.



Vellum from Ashlar Corporation is the first design package to draw on the concepts of expert systems, establishing a new standard for intuitive design and drafting. It also offers integrated parametric design capabilities.



VersaCAD/Macintosh Edition offers many advanced features, including the ability to automatically generate a bill of materials. In addition, it utilizes Apple's HyperCard® software to facilitate access to its built-in database.



For three-dimensional architectural design, DynaPerspective from Dynaware Corporation offers a wide range of features, including walk-through and animation capabilities.



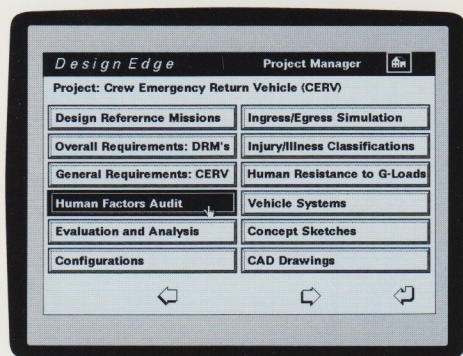
icons that represent the tools you use every day, familiar commands for executing similar tasks, and the ability to "cut" and "paste" text and graphics between applications. This consistency means that much of what you learn from using one program can be applied when you use other programs.

And that makes it possible for you to draw not only on the capabilities of Macintosh, but, more important, on your own experience.

MicroStation Mac from Intergraph Corporation is a fully integrated 2-D and 3-D software package that can be used to create complex wire frames, hidden-line removals, and renderings. It also features comprehensive database capabilities.



With Apple Desktop Publishing—the combination of a Macintosh computer, a LaserWriter II printer, and a variety of software—it's easier than ever to create brochures, newsletters, and other printed materials that can be used to help sell a product or an idea.



As difficult as it is to come up with a great idea, that task often pales in comparison to the challenge of selling it to the rest of the world.

An old adage says that if you "build a better mousetrap, the world will beat a path to your door."

More than likely, though, the person who made that claim never had to sell an idea to a roomful

of clients, managers, accountants, and other skeptics.

With a Macintosh, accomplishing your goals can be much easier. Because Macintosh can help you to be more concise and persuasive at every step in the process—whether it's writing a memo, producing a series of design iterations, preparing the initial presentation, or putting the

finishing touches on the technical documentation.

What makes Macintosh unique is its integrated design. With a single Macintosh system, you can do virtually everything you need to do.

Sketch a building.

The Macintosh SE, shown here with the Apple Keyboard, can be configured with several memory and hard disk options.

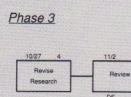
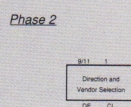
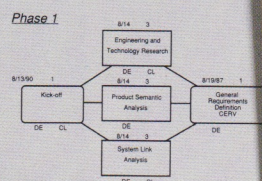


Exhibit 4

Module	Type	Unit	Capital Cost (\$M)	Operating Cost (\$/day)	Person	No. of Parts	Minimum Number of Modules Required
1. Space Station	Module	Unit	18.7	11.2	2.2	2	1
2. Module	Module	Unit	39.0	48.4	3.2	2	1
3. Astrophysics Lab	Module	Unit	42.0	61.7	3.7	2	1
4. Command	Module	Unit	33.6	45.8	3.7	2	1
5. Experimental Lab	Module	Unit	31.3	37.2	2.7	2	1
6. Habitation	Module	Unit	7.2	45.7	1.5	2	1
7. Heat Radiator	Module	Unit	18.5	25.3	2.2	4.4	2
8. Adapter	Module	Unit	59.9	67.2	10.5	4.4	2
9. Mantis, Proc. Bio	Module	Unit	55.3	69.4	8.8	4.4	2
10. Mantis, Proc. Elec	Module	Unit	61.9	69.1	8.8	4.4	2
11. Medical Service	Module	Unit	32.7	30.1	1.5	2	1
12. Mantis, Proc. MSP	Module	Unit	17.3	7.2	1.5	2	1
13. Pallet Rack	Module	Unit	17.3	7.2	1.5	2	1
14. Thruster	Module	Unit	17.3	7.2	1.5	2	1
15. Recreation	Module	Unit	17.3	7.2	1.5	2	1
16. Removal	Module	Unit	17.3	7.2	1.5	2	1

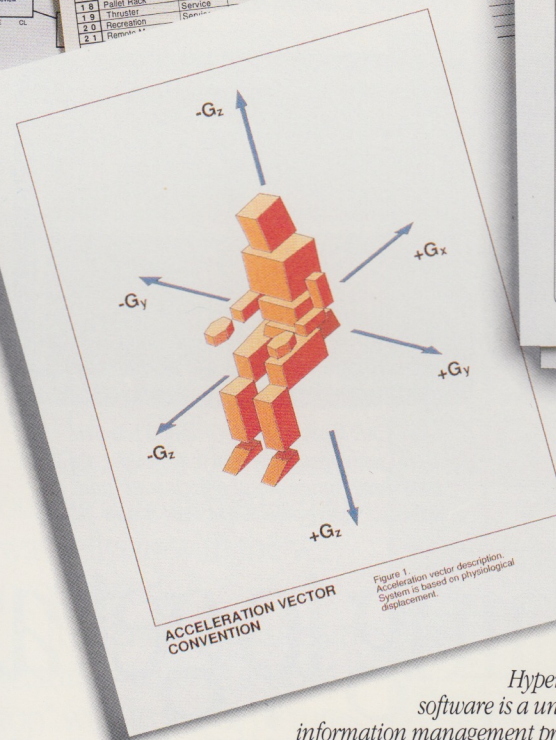
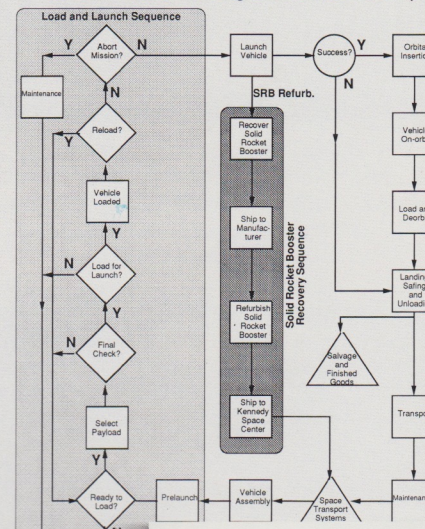
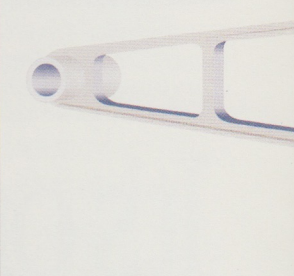


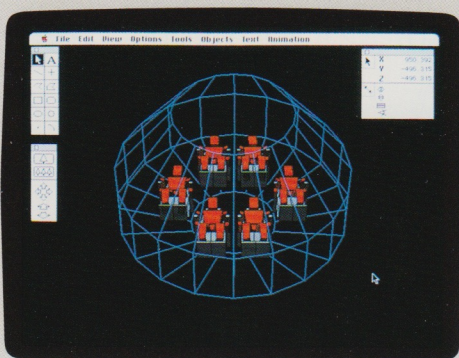
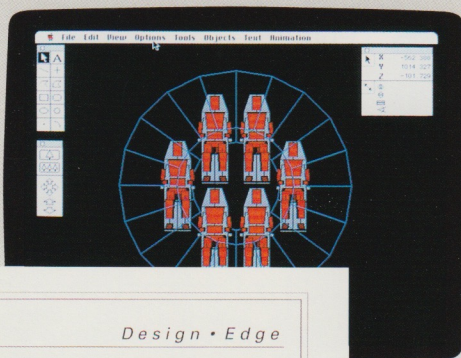
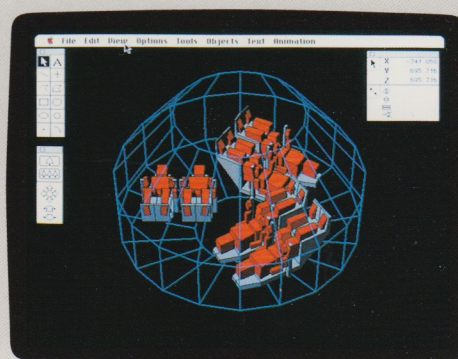
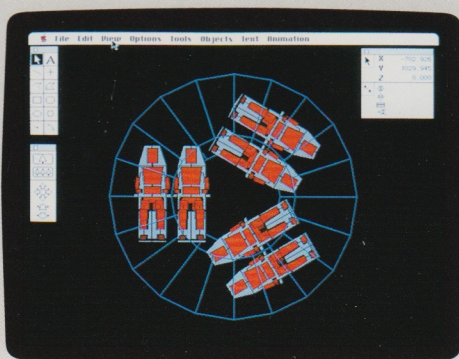
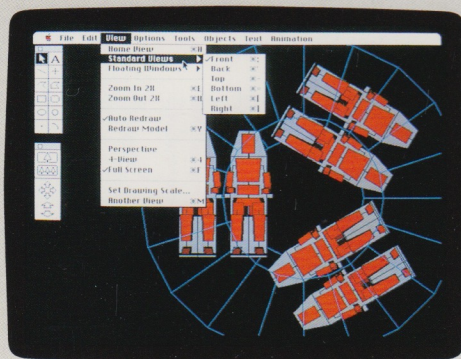
Figure 1. Acceleration vector description. System is based on physiological displacement.

Exhibit 1: Process Flow Diagram for Orbiter Round-trip

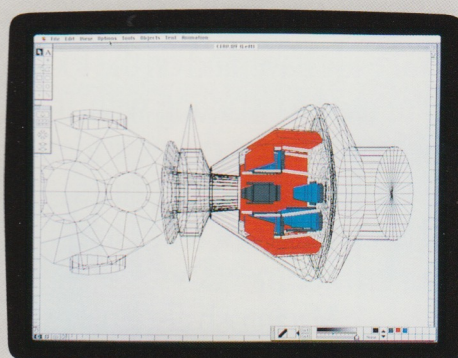
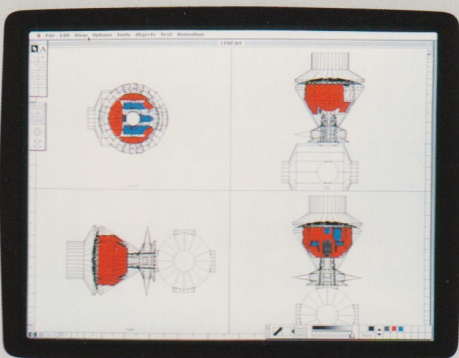
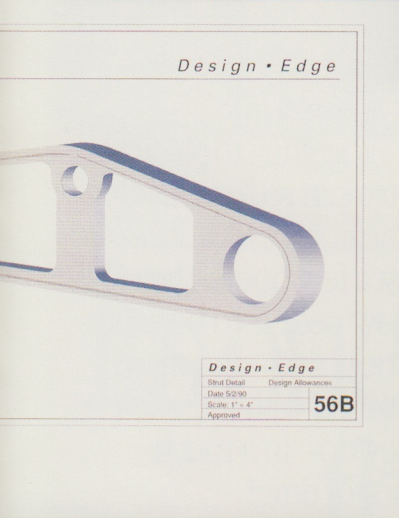


STRUT DETAIL





With a Macintosh computer and the software that best suits your design needs, it's possible to create and revise drawings and models in real time—without having to go through expensive and time-consuming design iterations.



Build a design.
Design a revision.
Revise the drawing.
Draw up a presentation.
Present the proposal.
Propose a schedule.
Schedule the meetings.
Meet the deadline.
And, finally, explain what it all means to the bottom line.
With Macintosh, it's all there

at your fingertips.
Literally.
And when Macintosh computers are connected in a network, people can collaborate on projects even more effectively.
You can share data more easily than ever before. You can readily exchange messages via electronic mail. And you can work cooperatively with other people on a

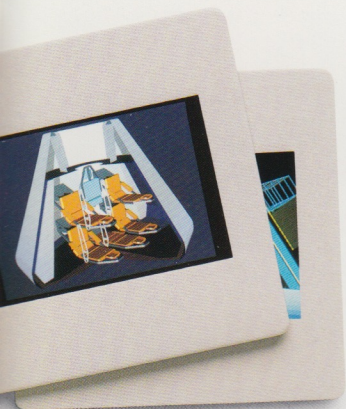
project in ways that give everyone the opportunity to contribute—whether it's during the initial presentation of the idea, the actual design work, or the preparation of the technical documentation.

The versatile, high-performance Macintosh IIcx can be configured with a range of hard disks and memory options, as well as with a choice of color and black-and-white monitors.



Making an idea fly is another story.

Macintosh computers can work with a wide range of output devices—including printers and plotters. Which means you'll never run out of room for your ideas.



Using the components of Apple Desktop MediaSM, virtually anyone can create everything from professional-quality reports to color slides to eye-catching, on-screen animations.



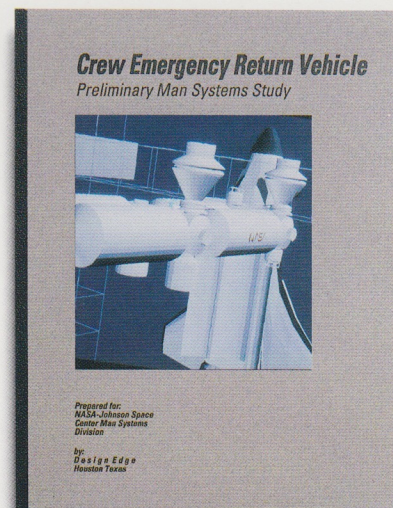
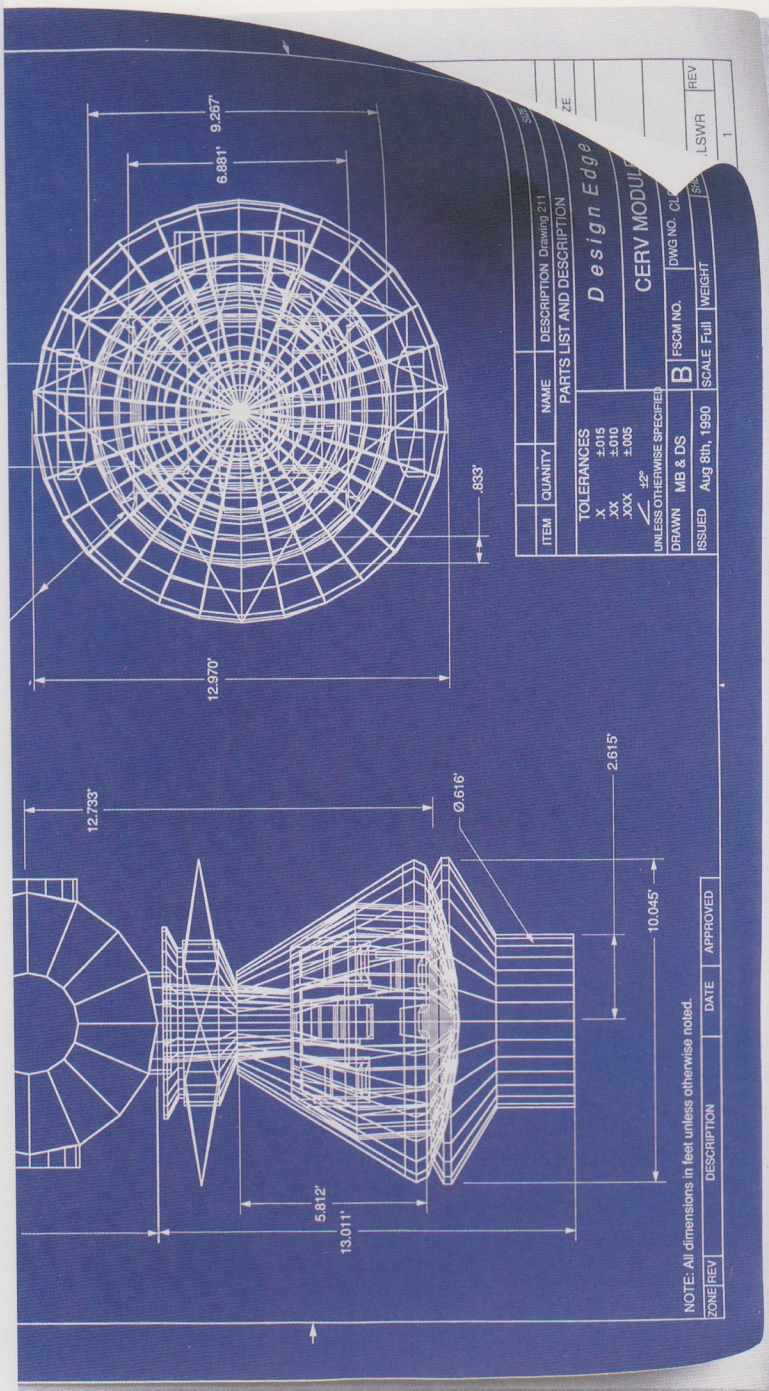
Every Apple Macintosh computer also has the “plug and play” networking capabilities provided by the AppleTalk[®] network system. Two things make AppleTalk unique: how easy it is to use, and how easily you can build a flexible, powerful networking environment around it.

AppleTalk offers you the flexibility of using the type of

network that best suits your application. It can run over everything from low-cost LocalTalk[™] cabling to coax to Token-Ring, and more—and it delivers the highest level of performance that the selected network can support. Which means that AppleTalk can start small, as the network for a workgroup, and can easily be expanded to accommodate departmentwide

and facilitywide requirements.

Macintosh computers can even be integrated with other types of computer systems (including MS-DOS, VAX[™], and UNIX) and in other types of network environments (Token-Ring, Ethernet, NFS, and TCP/IP). This level of connectivity and compatibility makes it possible for Macintosh users to access



INVOICE				
Name: NASA-Johnson Space Center Man Systems Division Attn: Houston TX, 77014			Design Edge Houston, TX 14523 Baymark, Houston Suite 205 Houston, Texas 77014 713-445-1360	
Job Description: Phase 1 Nasa Space Station Transportation System			Invoice # 1052 Date 10/02/89	
#	Hours	Service	Rate	Price
1	80	Project Management	55	3,300
2	120	Preliminary Study	40	4,800
3	40	Concept Sketches	40	1,600
4	80	Human Factors Analysis	55	4,400
5	75	Component Configurations	40	3,000
6	40	Foundation Design	55	2,200
7	80	Structural Design	55	4,400
8	85	Mechanical Consultant	50	4,250
9	120	Requirement Specifications	40	4,800
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
Comments:			Sub-Total	32,750
			Total	32,750

Because Macintosh applications support copy and paste capabilities, everything you create—charts, drawings, models—can quickly be moved between programs, making it much easier to create proposals, technical documentation, forms, and more.

As the most expandable Macintosh computer, the high-performance Macintosh IIx can accommodate a variety of options, including large-screen monitors, internal communications cards, and more.

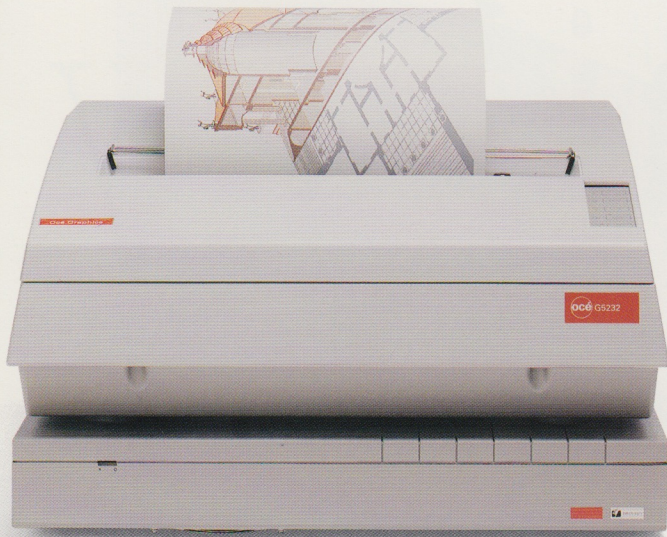


drawings and other files stored on a mainframe, minicomputer, or another personal computer, make revisions to the files from their Macintosh applications, and store them on the server—in a file format that's compatible with other systems on the network.

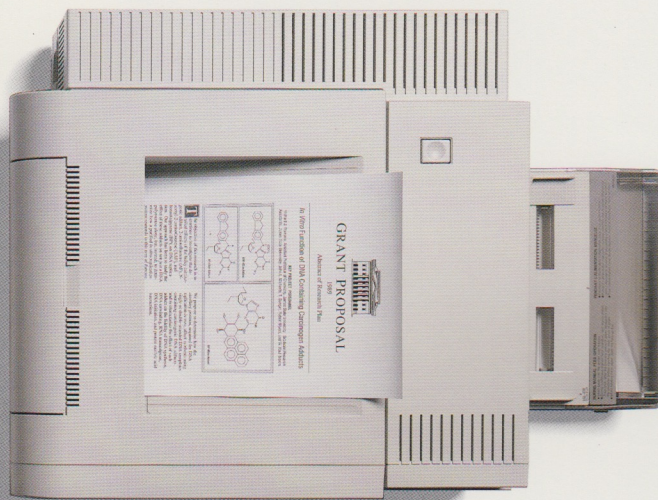
These are just a few of the design features and software innovations that have made

Macintosh so popular with professionals in all fields of design, science, construction, engineering, and architecture. Because one system—Macintosh—can help them do nearly all of the things they need to get done.

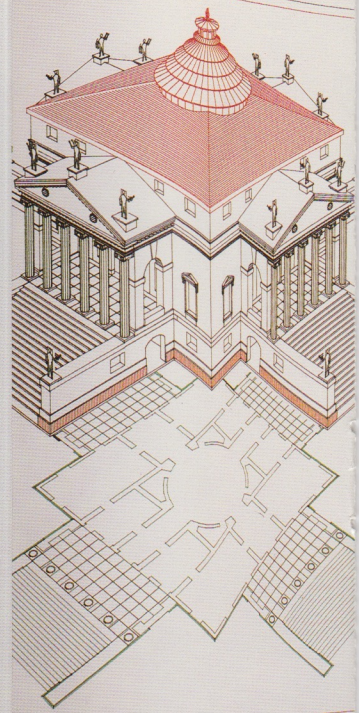
After you've had a chance to work with a Macintosh, you may find that it's all you need to get your ideas off the ground.



The Océ Graphics G5232 Color PostScript® printer produces high-quality images using the Pantone color-matching system. It prints on paper or transparent film up to 11 by 17 inches.



Apple's expandable LaserWriter II NTX printer produces Macintosh images of near typeset quality on paper and transparent film. It can be shared via the AppleTalk network system.



The Hewlett-Packard DraftPro DXL plotter is a high-quality color plotter that works with many Macintosh applications to produce hard-copy drawings and blueprints in a variety of sizes.

Different forms for

As you're well aware, the job isn't complete until the paperwork is done. In the process of evolving and selling an idea, it may seem as though all you do is try to make paper work—whether it's a letter-size page or an E-size drawing.

Today, Macintosh computers

can work with all kinds of output devices, from our family of high-resolution Apple LaserWriter® printers to high-quality color printers and film recorders to high-performance multicolor plotters.

But with computers, as with anything else in business, you get

out of something only what you put into it. That's why, in addition to output devices, Macintosh computers are designed to work with a wide range of input devices—everything from advanced color scanners to high-resolution digitizers.



The AppleCD SC™ drive offers a cost-effective way to access information. Each 550-megabyte CD-ROM disc can hold the equivalent of 270,000 typewritten pages.



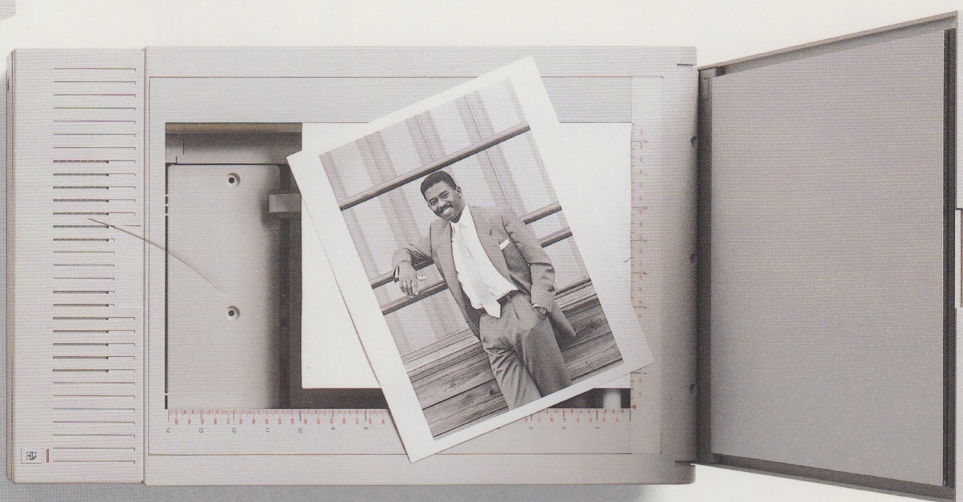
The Apple Hard Disk 80SC is an 80-megabyte SCSI hard disk drive that can store the equivalent of 40,000 pages of information and access data up to six times faster than a 3.5-inch floppy disk drive.



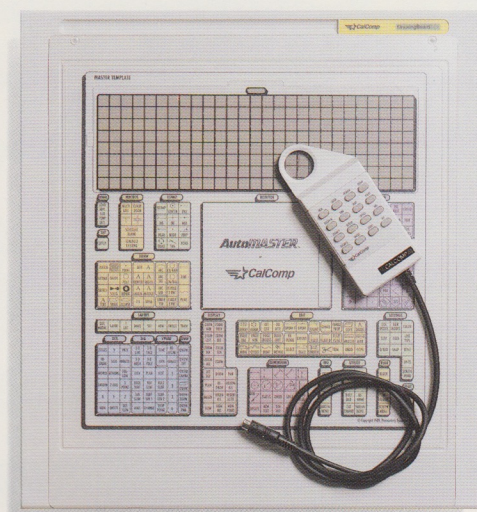
The E-Machines monitor presents high-quality color images with precision, and features a high vertical refresh rate that results in a very stable display.



The SuperMac 19-inch color monitor, used in conjunction with an 8-bit or 24-bit Spectrum color graphics card, displays up to 256 colors.



Using the Apple Scanner, you can import graphics, drawings, and photos into a variety of software applications, where you can use them as they are, or enlarge, shrink, trace, and even color them.



The CalComp DrawingBoard is an advanced digitizer that is available in a range of sizes. It comes with a stylus or a pen and can be used to create original drawings or trace existing ones.

different functions.

Between the input and output stages is the place where designers, engineers, and architects spend most of their time: working at the computer screen. With Macintosh computers, you can have your choice of a wide range of monitors: high-resolution color monitors

in a selection of sizes from 13 inches to 21 inches, as well as high-quality gray-scale monitors in sizes from 12 inches to 21 inches.

But perhaps the best part is that all these devices feature the highly integrated, "plug and play" compatibility that charac-

terizes virtually all Macintosh-related products. Which goes to show that with Macintosh computers and the right combination of hardware, you'll be able to work in ways you never could before.

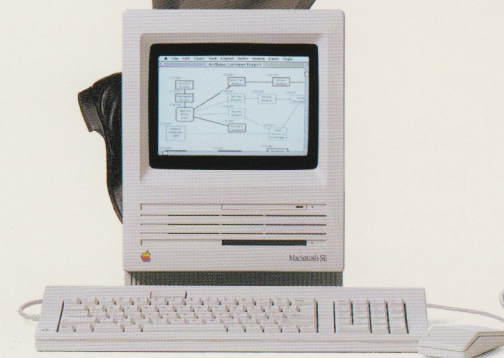
And that can make all the difference in the world.

Great ideas can

I'm responsible for managing the development of container systems for the manufacture of frozen antibiotics. This involves coordinating, scheduling, and budgeting the efforts of everyone from engineers to truck drivers.

With such a massive effort, I use the Macintosh to handle the incredible amount of information it takes for us to deliver the drugs that help save people's lives.

James Marks,
Program Manager,
Parenterals Division,
Baxter Healthcare,
Round Lake, IL



The Macintosh SE has a built-in monitor, one expansion slot, and a second built-in drive—either an 800K floppy disk drive or a 40-megabyte hard disk.

When I arrived, the dean gave me a quarter-million-dollar budget. I spent it filling a lab with Macintosh computers.

My students find they're capable of doing far more than they ever dreamed possible—in far less time. At first they use Macintosh because their professor loves it, then they grow to love it themselves.

Mike Sherman,
Associate Professor
of Landscape
Architecture,
Rutgers University,
New Brunswick, NJ



The Macintosh IIcx is a fast, modular Macintosh with color capability, three internal slots, an optional hard disk, and an Apple FDHD™ SuperDrive™.

We do 90 to 95 percent of the work on our industrial design projects with our Macintosh computers.

We usually start by turning out a proposal and a schedule, and then, once they're approved, we do layout drawings and 3-D color renderings. Sometimes we even animate them to show clients how the product will move or function. Finally, when the renderings are approved, we turn out industrial design control drawings that we send to the manufacturing engineers.

Liz Walters,
Vice President
of Design,
Design Edge,
Houston, TX



The Macintosh II is a modular Macintosh with color capability, six internal slots, and an optional hard disk.

take many forms.

Four years ago, I had a PC on my desk, but I wanted a tool I could do real work with, so I brought in my Macintosh from home.

It has proved to be a serious CAD engineering tool. I recently used it to redesign the latching mechanism for the modular shielding mount on our product, a medical linear accelerator product used for x-ray therapy.

Stan Mansfield,
Manager of Mechanical
Engineering Operations,
Varian Associates
Radiation Division,
Palo Alto, CA

I set up complete Macintosh-based CAD systems for my facilities management clients.

I use Macintosh because it's such a non-intrusive medium for design.

One of my clients is 58 years old. He'd never used a computer before. He was terrified when I told him he'd have to use a computer.

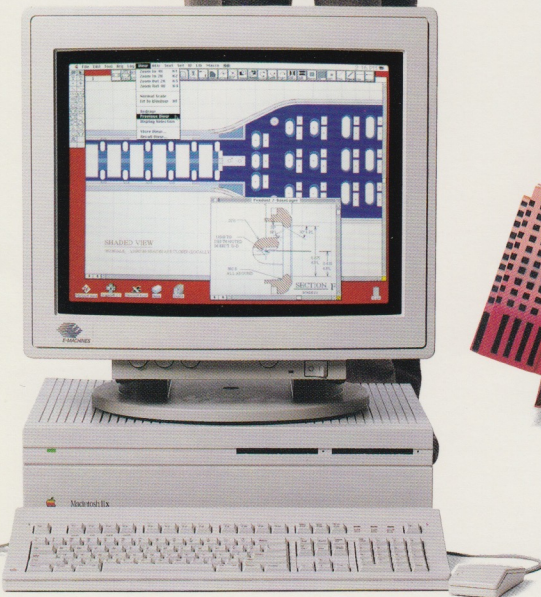
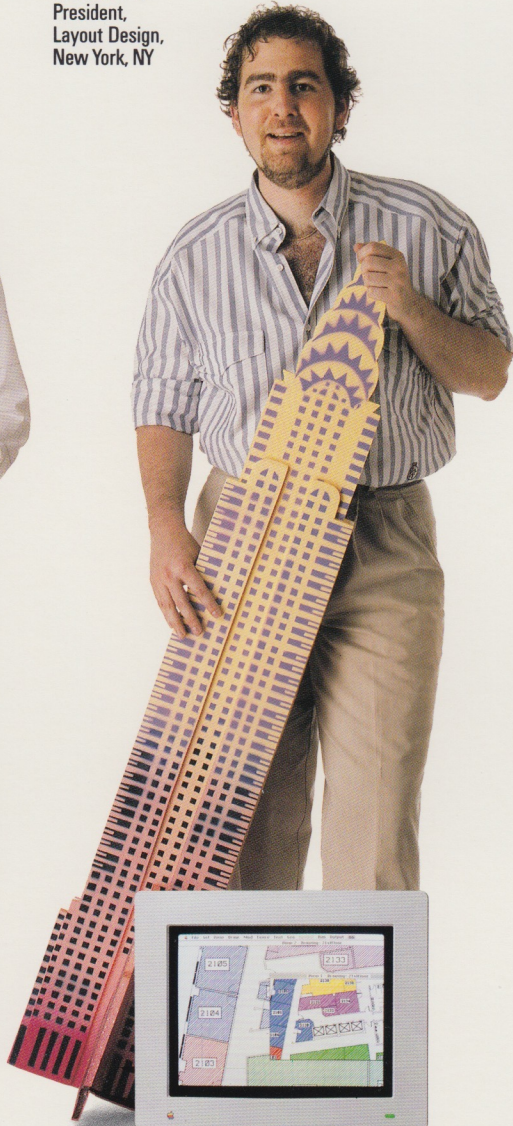
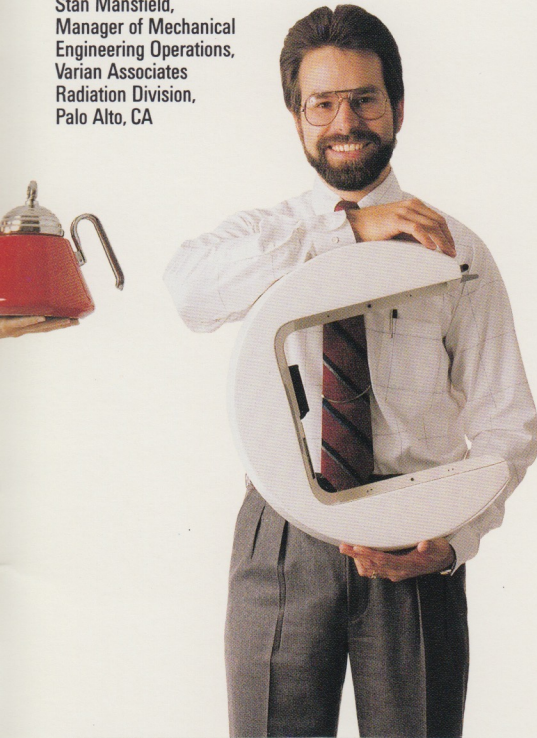
But now he can't wait to get to work every day.

David Silver,
President,
Layout Design,
New York, NY

In 1985, we bought one Macintosh Plus, and on the very first project we used it to design a 60,000-square-foot office building—floor plans, elevations, and sections. We were surprised that we could do the complete job on this simple, \$3,000 CAD station, but it worked. Even better, we didn't have to go out and hire a bunch of CAD operators. We did it ourselves.

Today we have 32 Macintosh computers, for 33 people, to do everything from site plans to client billing.

John Stark, Partner,
Lee, Ruff, Waddle Partnership,
Architects, AIA
Portland, OR



The Macintosh IIx is a fast, modular Macintosh with color capability, six internal slots, an Apple FDHD SuperDrive, and an optional hard disk.

The Macintosh IIfx is the highest-performance Macintosh. It features built-in video support, three internal slots, and an Apple FDHD SuperDrive.

The Macintosh SE/30 adds features to the Macintosh SE: it runs up to four times faster and has an Apple FDHD SuperDrive.

Get the idea?

So far you've had a chance to read about what makes Macintosh the ideal choice for all areas of design, and for all the stages of design—from start to finish.

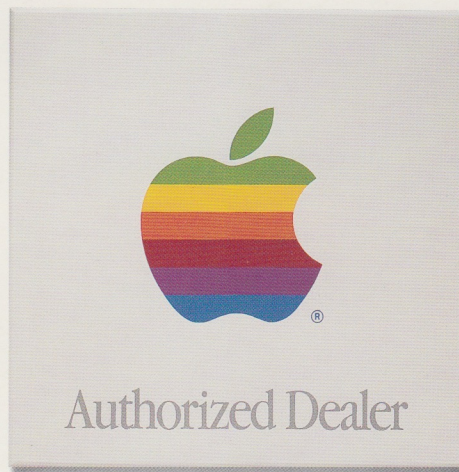
That experience should trigger some interesting ideas about what *you* can do with a Macintosh.

And we just happen to know someone who'd be more than willing to answer any questions you may have: the Apple representative or certified Apple

engineering reseller in your area. He or she will be able to demonstrate many of the products discussed in this brochure, and to show you how to set your designs on a Macintosh—no matter what line of work you're in.

So call us at 1-800-538-9696, ext. 600, for the name and location of the Apple engineering reseller or sales office in your area.

It may turn out to be the best idea you have all day. And that idea can start you on your way to making some history of your own.



Apple Computer, Inc.

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Idea people whose photographs appear on the front cover (in case you haven't already guessed): Top row: Aristotle, Nicolaus Copernicus, Antonie van Leeuwenhoek, Leonardo da Vinci, Blaise Pascal. Second row: John Winthrop, James Watt, Charles Babbage, Eli Whitney, Benjamin Franklin. Third row: Alessandro Volta, Elias Howe, Louis Pasteur, Ottmar Mergenthaler, Galileo. Fourth row: George Washington Carver, George Eastman, Thomas Edison, Alfred Nobel, James Dewey Watson. Bottom row: Joseph Strauss, Edith Clark, Charles Eames, Walter Gropius, Buckminster Fuller.

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